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Imported Fire Ant Facts

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IMPORTED FIRE ANT FACTS

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THE IMPORTED FIRE ANT[1] is a serious pest of animals, crops and rangeland in Southeast Texas. This insect, unlike many other insect pests, affects both urban and rural residents. Invasion by the imported fire ant into lawns, pasturelands, hay meadows, parks, school yards and recreational areas causes unsightly damage, is annoying and poses a possible health hazard. This vicious, aggressive pest closely resembles two native, but less serious, species of fire ants[2] commonly found in Texas.

Spread

The imported fire ant first entered the United States nearly 50 years ago from South America through the port at Mobile, Alabama. Since then it has become an infamous pest of both rural and urban areas in the South. It has spread over Alabama, Mississippi and Louisiana into Arkansas, Florida, Georgia, South Carolina, North Carolina, Tennessee and Texas.

Imported fire ant infestations were found in 56 Texas counties in mid-1972. Infestations generally were confined to the area east of a line running from DeWitt County in South Central Texas northeast to Smith County in East Texas. Outlying infestations have been noted in the Dallas-Fort Worth, Waco and San Antonio metropolitan areas.

The native species closely resemble the imported fire ant, but their mounds are small compared to those built by the imported species.

Distinguishing between imported and native species is difficult, but positive identification can be made by specialists familiar with all three species. In most cases, identification is made by examining the larger workers. Each colony consists of a small number of the larger forms (major workers). Samples sent in for identification should contain three or more of the major

[1] *Solenopsis invicta* Buren.
[2] *Solenopsis xyloni* McCook (southern fire ant); *Solenopsis geminata* Forel (Tropical fire ant).

Top, pupa; bottom, larva.

Winged female (queen).

workers. *Contact your county agricultural agent for information on submitting specimens for identification.*

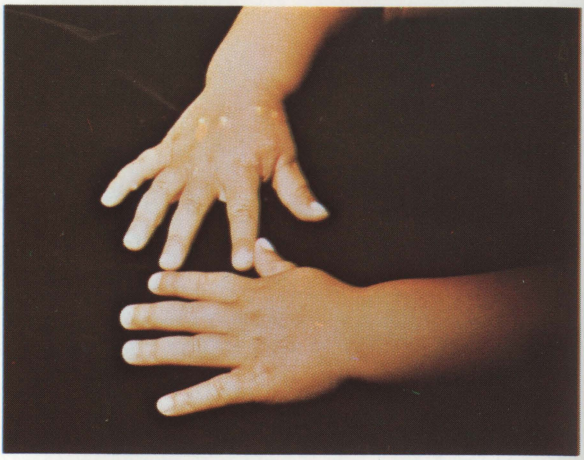
The imported fire ant spreads naturally through nuptial flights; however, the queens also may spread by crawling, drifting downstream in logs, traveling aboard cars, trucks or trains. Shipments of nursery stock or soil from an infested area may relocate an entire colony or nest.

The nuptial or queen flights commonly occur in April, May and June. These flights generally follow a rain. Unusual nuptial flights have been observed in late summer, fall and winter in the warmer areas along the Gulf Coast.

Damage

Imported fire ants can damage young plants by gnawing holes in roots, tubers, stalks and buds. They may attack young, unprotected animals, such as newborn calves and pigs and newly hatched quail and poultry.

The most significant agricultural losses resulting from this pest are reduced efficiency of labor and machinery—losses hard to assess in dollars. Their mounds damage machinery, hinder mowing operations and reduce the value of the land in heavily infested areas. Since these ants prefer land exposed to the sun, some of the most valuable farming and pastureland is heavily infested.



Fire ant stings on a child's hands.

Imported fire ants interfere with harvesting of crops because their fiery sting is painful. Farmers lose valuable time during seeding, fertilizing and harvesting operations.

The imported fire ant is quite annoying to urban residents. They invade such areas as lawns, parks, playgrounds, school yards, cemeteries, golf courses and even homes. The ants will bite and sting anything that disturbs their mound. One ant can sting repeatedly. Afterwards, burning and itching occur, possibly followed by the formation of a white sore or pustule that could leave a permanent scar.

The venom of the imported fire ant is unlike that of other stinging insects. Some persons who are hypersensitive to this venom may suffer chest pains or nausea and even lapse into a coma from one sting.

Persons who exhibit severe reactions to fire ant stings should receive immediate treatment.

Development

The ant colony consists of three adult forms:

1. Winged fertile females (queens) which lay the eggs. At one stage in the life history of an ant colony there is typically only one ant—the young, mated female.

2. Winged fertile males which mate with the queens.

Unsightly damage to homesites.

3. Worker ants which are wingless and usually sterile. Adult workers of the imported fire ant differ in size. The larger forms are referred to as "major workers"; the smaller as "minor workers." Activities of the two appear the same.

The fertile winged forms live in seclusion until it is time for them to leave the colony (mound) and begin their only mating flight. The fertile males are smaller and blacker than the queens. They fly directly from the mound surface while the queens usually climb on nearby plants and slowly lift their bodies into the air.

Once airborne, the ants fly out of sight and mate in flight. The males die soon after mating while the fertilized queens find suitable nesting sites, shed their wings and begin digging underground chambers in which they lay eggs.

The queen first lays a cluster of 10 to 15 eggs and looks after her first egg cluster almost constantly. When the eggs hatch (8 to 12 days), the helpless larvae depend on the queen for food from her body. Later the queen lays clusters of 75 to 125 eggs, and the larvae receive food gathered by the workers. The larvae pupate in 6 to 12 days and adults emerge in 9 to 16 days. A longer time is required for development of the winged forms. Mound building by newly established colonies is not conspicuous for 12 to 18 months after the young queen initiates egg laying.

The average-sized colony may contain 100,000 to 500,000 workers and only a few dozen winged forms.

The workers are red or black and are 1/8 to 1/4 inch long. They forage for food, maintain and enlarge the mound, care for the brood and protect the colony.

Imported fire ants build mounds in almost any type of soil but are more prevalent in open areas such as cultivated fields, pastures, parks, lawns and meadows. They prefer areas fully exposed to sunlight. They often are found in rotting logs around stumps and occasionally under buildings.

The mounds constructed by the imported fire ant average 15 or more inches in diameter and 10 to 12 inches in height. Around stumps, shrubs or posts, the mounds may attain a height of 3 feet.

SUPPRESSING THE PROBLEM

The following goals have been established:

1. Survey to determine the extent of imported fire ant infested area.

2. Set up quarantine regulations to prevent the ants from invading additional states and regions.

3. Treat outlying infestations first to shrink the infested area.

4. Suppress ant populations within a generally infested area so that uninfested land is protected.

Three coordinated steps to control the imported fire ant now being taken are: (1) surveys, (2) quarantines and (3) treatment.

Surveys

Surveys are conducted by Federal and State pest control workers to determine the outer limits of the generally infested areas and the extent and degree of infestation. Such information is vital to program officials, advisory committees and other federal-state agencies in planning effective program procedures to combat the pest.

Surveys are continuous because of the ever-changing pattern of infestation. Efforts to spot

new infestations are intensified in the fall and winter months when mounds are less obscured by vegetation.

Quarantines

A Federal quarantine was invoked in 1958 to help prevent the interstate spread of the imported fire ant and to protect treated areas from reinfestation. The federal quarantine and parallel state quarantines regulate the movement of materials such as soil, gravel and sand or products with soil attached and unmanufactured forest products.

By inspecting these products, and treating them if necessary, state and federal program personnel have kept them moving within trade channels in compliance with federal and state quarantine regulations. Thus, long-distance spread of the pest through commerce has been prevented.

States immediately affected by quarantines are: Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, South Carolina and Texas.

Treatment

Mirex bait currently offers the safest means for controlling the imported fire ant. Formulated as ant-attractive granules consisting of ground corncob grits impregnated with the Mirex insecticide dissolved in soybean oil, the bait provides effective control at very low dosages per acre. Distributed in bait form, less than 1/7 ounce of actual insecticide is applied per acre. Another desirable feature of the bait is its delayed toxic action against the ants. This delay allows the foraging ants to carry the bait into the colony and distribute it to the queen and brood before it takes effect. Because of the bait's slow action, several weeks usually elapse before the colony is exterminated.

The United States Environmental Protection Agency is responsible for registration and labeling of insecticides and other pesticidal chemicals. EPA Administrator William D. Ruckelhaus released orders on May 4 and July 6, 1972, containing the following essential parts pertaining to the use of Mirex bait:

> (1) All broadcast application, aerial or otherwise, is prohibited in coastal coun-

ties or parishes and on or near estuaries, rivers, streams, lakes, ponds, other aquatic areas and heavily forested areas.

(2) Ground broadcast application by private persons is prohibited in all other areas unless such application is by means of equipment which can be properly calibrated to deliver recommended label dosages.

(3) Individual mounds may be treated by hand at dosages not to exceed recommended label rates.

County Extension agents are constantly informed of current labelling and restrictions and can furnish current information regarding the proper use of Mirex.

Heptachlor, chlordane and dieldrin are effective, economical materials which can be used to control the imported fire ant. These insecticides may be used in nurseries, industrial sites, lawns, golf courses, cemeteries, parks and other restricted non-agricultural, non-aquatic areas. These materials are persistent chlorinated hydrocarbon insecticides, so they must be used where they will not be a hazard to wildlife or result in contamination of raw agricultural commodities or livestock.

Chlordane and heptachlor may be used as a broadcast soil treatment in restricted areas where imported or other species of fire ants forage. Where these materials can be used, the granular form is most frequently applied. However, either liquid or other dry formulations also may be used. The broadcast rate for chlordane is 1.0 to 1.5 pounds per acre, while heptachlor may be used at the rate of 1.25 pounds per acre.

In small, lightly infested areas, the ants may be controlled by treating individual mounds with heptachlor, chlordane or dieldrin. Individual mound treatment usually kills the ants in the particular mound, but it does not prevent infestation in untreated areas. Treated areas should be examined within 3 weeks after treatment, and surviving colonies should be retreated. When possible, insecticides should be applied during the winter or the cool months of spring.

The mound treatment is simple. First, tear down the mound and apply 1 to 2 cups of

granules or dust containing 10 percent chlordane or 5 percent dieldrin or 10 percent heptachlor either by hand or dust gun to the mound and to the ground within a 10 to 12-foot area on all sides. The following spray mixtures also may be used to treat mounds:

Emulsifiable concentrate	Tbsp. to 3 gal. water
Chlordane (4 lb. per gal.)	4
Dieldrin (1½ lb. per gal.)	12
Heptachlor (2 lb. per gal.)	8

Thoroughly saturate the mounds.

Heptachlor, chlordane and dieldrin are not currently registered for large block or area treatment of the imported fire ant. Check with your county agent concerning the safety and advisability of treating specific areas.

Caution

Heptachlor, chlordane and dieldrin should not be applied where food, feed or forage will be grown. Dairy animals and animals being finished for slaughter must not be permitted to graze in treated areas. The insecticides must be kept out of water used by humans or animals. The insecticides should not be applied to food crops. Directions on the manufacturer's label should be carefully checked and followed.

For additional information, contact your county agricultural agent or write the Extension entomologist, Texas A&M University, College Station, Texas 77843.

COVER PHOTO

Imported fire ants prefer land exposed to the sun. Thus some of the most valuable farming and pastureland is heavily infested. These mounds were located on an East Texas pasture.

Educational programs conducted by the Texas Agricultural Extension Service serve people of all ages regardless of socio-economic levels, race, color, sex, religion or national origin.

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